What is claimed is:

1. A method of stabilizing nanoparticles selected from the group consisting of semiconductor nanoparticles, metal nanoparticles and metal salt nanoparticles, the method comprising contacting dendrons containing single focal point functional groups, with colloidal solutions selected from the group of colloidal solutions consisting of semiconductor, metal, and metal salt nanoparticles and allowing the single focal point functional groups to react with the surfaces of the semiconductor, metal, and metal salt nanoparticles to obtain stabilized, dendronized, semiconductor, metal, and metal salt nanoparticles.

2. A method of stabilizing nanoparticles selected from the group consisting of semiconductor nanoparticles, metal nanoparticles, and metal salt nanoparticles, the method comprising contacting organic dendrons containing single focal point sulfhydryl groups, with colloidal solutions of semiconductor, metal, and metal salt nanoparticles and allowing the single focal point sulfhydryl groups to react with the surfaces of the semiconductor, metal, and metal salt nanoparticles to obtain stabilized, dendronized, semiconductor, metal, and metal salt nanoparticles.

3. A method of stabilizing semiconductor, metal, and metal salt nanoparticles, the method comprising contacting organic dendrons containing single focal point phosphine groups, with colloidal solutions of semiconductor, metal, and metal salt nanoparticles and allowing the single focal point phosphine groups to react with the surfaces of the semiconductor, metal, and metal salt nanoparticles to obtain stabilized, dendronized, semiconductor, metal, and metal salt nanoparticles.

4. A method of stabilizing nanoparticles selected from the group consisting of semiconductor, metal, and metal salt nanoparticles, the method comprising contacting organic dendrons containing single focal point phosphine oxide groups, with colloidal solutions of semiconductor, metal, and metal salt nanoparticles and allowing the single focal point phosphine oxide groups to react with the surfaces of the semiconductor, metal, and metal salt nanoparticles to obtain stabilized, dendronized, semiconductor, metal, and metal salt nanoparticles.

5. A method according to claim 1 wherein the semiconductor, metal, and metal salt nanoparticles are passivated prior to contacting them with the single focal point functional groups.

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~~5~~ 6 A method according to claim 2 wherein the semiconductor, metal, and metal salt nanoparticles are passivated prior to contacting them with the single focal point functional groups.

~~6~~ 7 A method according to claim 3 wherein the semiconductor, metal, and metal salt nanoparticles are passivated prior to contacting them with the single focal point functional groups.

~~7~~ 8. A method according to claim 4 wherein the semiconductor, metal, and metal salt nanoparticles are passivated prior to contacting them with the single focal point functional groups.

~~8~~ 9. A method according to claim 1 wherein the outside surfaces of the dendrons contain functional groups.

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~~9~~ 10. A method according to claim 2 wherein the outside surfaces of the dendrons contain functional groups.

~~10~~ 11. A method according to claim 3 wherein the outside surfaces of the dendrons contain functional groups.

~~11~~ 12. A method according to claim 4 wherein the outside surfaces of the dendrons contain functional groups.

~~12~~ 13. A method according to claim ~~5~~ 6 wherein the outside surfaces of the dendrons contain functional groups.

~~13~~ 14. A method as claimed in claim ~~8~~ 9 wherein the functional groups on the outside surfaces of the dendrons are selected from the group consisting of: (i) hydrophilic groups, (ii) hydrophobic groups, (iii) reactive groups, and (iv) passive groups.

~~14~~ 15. A method as claimed in claim ~~8~~ 9 wherein the functional groups on the outside surfaces of the dendrons are selected from the group consisting of: (i) hydrophilic groups, (ii) hydrophobic groups, (iii) reactive groups, and (iv) passive groups.

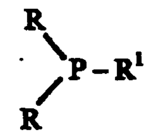
~~15~~ 16. A method as claimed in claim ~~8~~ 9 wherein the functional groups on the outside surfaces of the dendrons are selected from the group consisting of: (i) hydrophilic groups, (ii) hydrophobic groups, (iii) reactive groups, and (iv) passive groups.

~~16~~ 17. A method as claimed in claim ~~8~~ 9 wherein the functional groups on the outside surfaces of the dendrons are selected from the group consisting of: (i) hydrophilic groups, (ii) hydrophobic groups, (iii) reactive groups, and (iv) passive groups.

~~17~~ 18. A method as claimed in claim ~~8~~ 9 wherein the functional groups on the outside surfaces of the dendrons are selected from the group consisting of: (i) hydrophilic groups, (ii) hydrophobic groups, (iii) reactive groups, and (iv) passive groups.

~~18~~ 19. A method as claimed in claim ~~13~~ 14 wherein the reactive groups are selected from the group consisting of: hydroxyl, amino, carboxylic, sulfonic, sulfonato, mercapto, amido, phosphino, -NH-COPh, -COONa, alkyl, aryl, ester, heterocylic, alkynyl, and alkenyl.

~~19~~ 20. A method as claimed in claim 3 wherein the phosphine group has the formula:



wherein each R is independently selected from alkyl radicals having 1 to 4 carbon atoms and aryl groups, and R^1 is a functionally reactive connector group.

~~20~~ 21. A method as claimed in claim 4 wherein the phosphine group has the formula:

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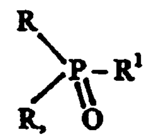

wherein each R is independently selected from alkyl radicals having 1 to 4 carbon atoms and aryl groups, and R^1 is a functionally reactive connector group

~~21~~ 22. A method of stabilizing nanoparticles selected from the group consisting of semiconductor nanoparticles, metal nanoparticles, and metal salt nanoparticles, the method comprising contacting organic dendrons containing single focal point sulfhydryl groups, with colloidal solutions of semiconductor, metal, and metal salt nanoparticles and allowing the single focal point sulfhydryl groups to react with the surfaces of the semiconductor, metal, and metal salt nanoparticles to obtain stabilized, dendronized, semiconductor, metal, and metal salt nanoparticles, wherein the single focal point sulfhydryl group containing dendron is prepared by the method comprising:

(I) providing a dendrimer have a disulfide core;

(II) reducing the disulfide of the disulfide core dendrimer to form sulfhydryl functional dendrons;

(III) contacting the sulfhydryl functional dendrons with a colloidal solution of nanoparticles to obtain dendronized semiconductor, metal, and metal salt nanoparticles.

~~22~~ 23. The method as claimed in claim ~~21~~ 22 wherein the semiconductor, metal, and metal salt nanoparticles cores are selected from any metal that can be made into a colloidal solution.

~~23~~ 24. A method as claimed in claim ~~19~~ 20 wherein the functionally reactive connector group contains at least one ethylene oxide unit.

~~24~~ 25. A method as claimed in claim ~~23~~ 24 wherein the connector group has from 1 to 10 ethylene oxide units.

~~25~~ 26. A method as claimed in claim ~~20~~ 21 wherein the functionally reactive connector group contains at least one ethylene oxide unit.

~~26~~ 27. A method as claimed in claim ~~25~~ 26 wherein the connector group has from 1 to 10 ethylene oxide units.

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~~27~~ 28. A composition of matter, said composition of matter being colloidal solutions selected from the group consisting of semiconductor nanoparticles, metal nanoparticles, and metal salt nanoparticles having outside surfaces, said outside surfaces having attached thereto, dendrons, said attachment comprising a linking group selected from the group consisting of :

(i) sulfur as the thiol,

(ii) thiol in combination with ethylene oxide units, and

(iii) phosphorus, wherein the phosphorus is in the form of a group selected from

(a) phosphines, and

(b) phosphine oxides in combination with ethylene oxide units.

~~28~~ 29. A composition of matter as claimed in claim ~~27~~ 28 wherein (a) in combination with ethylene oxide has the general formula:

$$\begin{matrix} R & & \\ & \searrow & \\ & & P\text{-}R^1\text{-}(CH_2CH_2O)_x-(\text{dendron}), \\ & \nearrow & \\ R & & \end{matrix}$$

wherein $_x$ has a value of from 1 to 10, each R is independently selected from alkyl groups of 1 to 4 carbon atoms and aryl groups and R^1 is a connector group.

~~29~~ 30. A composition of matter as claimed in claim ~~27~~ 28 wherein (b) in combination with ethylene oxide has the general formula:

$$\begin{matrix} R & & \\ & \searrow & \\ & & \underset{\underset{O}{\|}}{P}\text{-}\,R^1\text{-}(CH_2CH_2O)_x-(\text{dendron}), \\ & \nearrow & \\ R & & \end{matrix}$$

wherein $_x$ has a value of from 1 to 10, wherein each R is independently selected from alkyl groups of 1 to 4 carbon atoms and aryl groups and R^1 is a connector group.

~~30~~ 31. A composition of matter as claimed in claim ~~27~~ 28 wherein (ii) in combination with ethylene oxide has the general formula: HSR^1—($CH_2CH_2O)_x$ – (dendron), wherein $_x$ has a value of from 1 to 10, wherein R^1 is a connector group.

~~31~~ 32. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is iron.

~~32~~ 33. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is gold.

~~33~~ 34. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is copper.

~~34~~ 35. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is platinum.

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~~35~~ 36. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is palladium.

~~36~~ 37. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is cobalt.

~~37~~ 38. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is nickel.

~~38~~ 39. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is zinc.

~~39~~ 40. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is cadmium.

~~40~~ 41. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is iron oxide.

~~41~~ 42. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is CdSe.

~~42~~ 43. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is CdS.

~~43~~ 44. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is CdSe/CdS.

~~44~~ 45. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is CdSe/ZnS.

~~45~~ 46. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is CdTe.

~~46~~ 47. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is CdTe/CdS.

~~47~~ 48. A composition of matter as claimed in claim ~~27~~ 28 wherein the nanoparticle core is CdTe/ZnS.

~~48~~ 49. The use of the composition of matter of claim ~~31~~ 31 as an MRI agent.

~~49~~ 50. The use of the composition of matter of claim ~~32~~ 33 as a projectile for a gene gun.

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~~50~~ 51. The use of a composition of claim 1 wherein the use is selected from the group consisting of: biologically active materials, genetic materials, biologically active materials for use as vaccines, biomedical tags, components in light emitting diode devices, diagnostics, nanosensors, nano-arrays for DNA and RNA, protein applications, chelators, photon absorption, energy absorbing, energy emitting, signal generator for diagnostics, and radioactive materials.